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[600.1119]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Re:	Application of:	CALLAHAN, et al.
	Serial No.:	09/768,736
	Filed:	January 24, 2001
	For:	SHAFTLESS MOTOR DRIVE FOR A PRINTING PRESS WITH ANILOX INKER
	Art Unit:	2854
	Examiner:	NGUYEN, ANTHONY H.

Mail Stop: APPEAL
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

January 28, 2004

APPELLANTS' BRIEF UNDER 37 C.F.R. § 1.192

Sir:

Appellants submit this brief for the consideration of the Board of Patent Appeals and Interferences (the "Board") in support of their appeal of the Final Rejection dated July 14, 2003 in this application. An original and two copies of this brief are submitted herewith. The statutory fee of $330.00 is paid concurrently herewith.

1. REAL PARTY IN INTEREST

The real party in interest is Heidelberger Druckmaschinen AG, a German corporation having a place of business at Kurfuersten-Anlage 52-60, D-69115 Heidelberg, Germany, the assignee of the entire right, title and interest in the above-identified patent application. The invention was assigned by inventors Callahan and

Franklin to Heidelberger Druckmaschinen AG. The assignment was recorded on May 7, 2001 at reel 011780/ frame 0695.

2. RELATED APPEALS AND INTERFERENCES

Appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

3. STATUS OF CLAIMS

Claims 1 to 20 are pending and finally rejected as per the Final Office Action dated July 14, 2003.

The rejection to claims 1 to 20 thus is appealed. A copy of appealed claims 1 to 20 is attached hereto as Appendix A.

4. STATUS OF AMENDMENTS AFTER FINAL

There were no amendments filed after final.

5. SUMMARY OF THE INVENTION

The present invention provides an offset printing press (e.g., 1 in Fig. 1, see, e.g., specification at page 5, line 25) comprising: a first plate cylinder (e.g., 16 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3); a first blanket cylinder (e.g., 18 in Fig. 1, see, e.g., specification at page 5, line 1) for selectively contacting the first plate cylinder (e.g., 16 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3); an anilox inker (e.g., 12, 13, 14 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3) for inking the first plate cylinder (e.g., 16 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3); a first motor (e.g., 20 in Fig. 1, see, e.g., specification at page 6, lines 7 to 8) directly connected to the anilox inker (e.g., 12, 13, 14 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3) for driving the anilox inker (e.g., 12, 13, 14 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3) and connected to the first plate cylinder (e.g., 16 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3) for driving the first plate cylinder (e.g., 16 in Fig. 1, see, e.g., specification at page 6, lines 1 to 3); further

comprising a second plate cylinder (e.g., 36 in Fig. 1, see, e.g., specification at page 6, lines 25 to 27); a second blanket cylinder (e.g., 38 in Fig. 1, see, e.g., specification at page 6, lines 25 to 27) for selectively contacting the second plate cylinder (e.g., 36 in Fig. 1, see, e.g., specification at page 6, lines 25 to 27); a second anilox inker (e.g., 32, 33, 34 in Fig. 1, see, e.g., specification at page 6, lines 21 to 23) for inking the second plate cylinder (e.g., 36 in Fig. 1, see, e.g., specification at page 6, lines 25 to 27); and a second motor (e.g., 22 in Fig. 1, see, e.g., specification at page 6, lines 21 to 23) directly connected to the second anilox inker (e.g., 32, 33, 34 in Fig. 1, see, e.g., specification at page 6, lines 21 to 23) for driving the second anilox inker (e.g., 32, 33, 34 in Fig. 1, see, e.g., specification at page 6, lines 21 to 23) and connected to the second plate cylinder (e.g., 36 in Fig. 1, see, e.g., specification at page 6, lines 25 to 27) for driving the second plate cylinder (e.g., 36 in Fig. 1, see, e.g., specification at page 6, lines 25 to 27).

The anilox inker includes for example an anilox roll 12 and ink form roll 14 (see, e.g., specification at page 6, lines 1 to 3).

6. ISSUES

Whether claims 1 and 14 should be rejected under 35 U.S.C. § 102(b) as being anticipated by Volz (U.S. Patent No. 5,826,505). Whether claims 2, 3, 17 to 20 should be rejected under 35 U.S.C. § 103 as being unpatentable over Volz in view of John (U.S. Patent No. 6,165,341). Whether claims 4 to 13, 15 and 16 should be rejected under 35 U.S.C. § 103 as being unpatentable over Volz in view of Puschnerat (U.S. Patent No. 5,950,538). Whether claims 1 to 20 should be rejected under 35 U.S.C. § 103 as being unpatentable over Richards (U.S. Patent No. 6,050,185) in view of John.

7. GROUPING OF CLAIMS

The claims may be grouped as follows:

Group I: Claims 1 and 14

Group II: Claims 2, 3, 17 to 20

Group III: Claims 4 to 6, 8, 9, 11, 13, 15 and 16

Group IV: Claim 7

Group V: Claim 10

Group VI: Claim 12

8. ARGUMENTS

Group I: Claims 1 and 14

Claims 1 and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by Volz (U.S. Patent No. 5,826,505).

Both claims 1 and 14 recite an anilox inker. D, R and HW identified by the Final Office Action is not an anilox inker, which is a short inker in which ink is held in cells in an anilox roller. See attached description of an anilox inker from HANDBOOK OF RPINT MEDIA, attached as Exhibit B.

An anilox inker, for example, does not have a vibrator roller, such as vibrator roller HW in Volz identified by the Examiner, or a distributor roller, or the other various smoothing inking rollers shown in Volz. Volz never discusses or discloses an anilox inker and clearly shows a conventional inking unit with a vibrator roller, distributor roller and a smoothing group. For this reason withdrawal of the rejection to claims 1 and 14 under 35 U.S.C. 102 (b) is respectfully requested.

Claims 1 and 14 also were rejected under 35 U.S.C. § 103 as being unpatentable over Richards (U.S. Patent No. 6,050,185) in view of John.

The Richards reference is discussed in the BACKGROUND INFORMATION section of the present application at page 1, line 21. Richards does not show or disclose an anilox inker.

John shows a blanket cylinder 1, a plate cylinder 5, an ink application cylinder 12, and an anilox roller 10, the ink application cylinder 12, blanket cylinder 1 and plate cylinder 5 being geared together.

Claim 1 requires "a first blanket cylinder for selectively contacting the first plate cylinder" and "a second blanket cylinder for selectively contacting the second plate cylinder" and anilox inkers for inking the plate cylinders. Claim 14 has similar limitations in this aspect.

The John reference is directed to an inking arrangement in which the blanket cylinder 1, plate cylinder 5 and the ink application cylinder 12 are all geared together, as shown in Figs. 1 and 2 of John and as discussed clearly at column 3, lines 34 to 39 and column 4, lines 42 to 46. The combination of the John teaching with Richards would have led one of skill in the art to gear the blanket and plate cylinders together if an anilox inker was to have been used. Such gearing would have precluded the present claim 1 limitation of selectively contacting the plate cylinder with the blanket cylinder. The combination of John with Richards would not have resulted in the claimed invention.

In addition, there is no motivation in any of the references to combine the anilox inker of John with Richards. The stated motivation in the office action "for optimal [of] transferring of ink to a printing plate" is not found in any reference concerning anilox inkers, and there is no teaching or suggesting in the prior art that the use of an anilox inker would have led to optimal transferring of ink. As discussed in the attached excerpt from the HANDBOOK OF PRINT MEDIA concerning anilox inkers, the motivation is not even true: anilox inkers do not optimize ink transfer as they typically are used for lower print quality demands. No proper motivation is provided, and it is unclear where the Examiner obtained the stated motivation, as one of skill in the art is not familiar with the assertion of optimized transferring of ink.

Withdrawal of the rejection to claims 1 and 14 is respectfully requested.

Group II: Claims 2, 3, 17 to 20

Claims 2, 3, 17 to 20 were rejected under 35 U.S.C. § 103 as being unpatentable over Volz in view of John and over Richards in view of John.

Volz, Richards and John are discussed above.

Claim 2 recites the "press as recited in claim 1 wherein the anilox inker includes an ink form roll and an anilox roll, the first motor directly driving the ink form roll."

As stated above, neither Richards nor Volz shows an anilox inker.

John does not disclose the limitation of claim 2, that the ink application cylinder 12 is driven directly by a motor. As clear from John in Fig. 2, cylinder 12 is

driven indirectly through gearing.

Thus even if the anilox inker of John could be provided to Volz or Richards (and it is respectfully submitted that there is no motivation to do so), the combination does not meet the limitation of claim 2.

Moreover, it is respectfully submitted that there is no motivation to replace the conventional inker of Volz with the anilox inker of John, or to replace the inker of Richards with the anilox inker of John.

Claim 17 recites a similar limitation to claim 2 and the other claims in this group depend from claims 2 or 17.

Withdrawal of the rejections to claims 2, 3 and 17 to 20 is respectfully requested.

Group III: Claims 4 to 6, 8, 9, 11, 13, 15 and 16

Claims 4 to 6, 8, 9, 11, 13, 15 and 16 were rejected under 35 U.S.C. § 103 as being unpatentable over Volz in view of Pushnerat and over Richards in view of John.

Volz, Richards and John are discussed above.

Pushnerat does not disclose an anilox inker, as claimed in claim 1 or 14 from which all claims in this group depend. As discussed above Volz also does not show an anilox inker. Thus even a combination of Volz and Pushnerat would not meet the claimed limitation of an anilox inker. Withdrawal of the rejection under 35 U.S.C. 103 in view of Volz and Pushnerat is respectfully requested.

As discussed above with respect to claims 1 and 14, it is respectfully submitted that the rejection under Richards in view of John also be withdrawn, as the claims in this group depend from claims 1 or 14.

Group IV: Claim 7

Claim 7 depends from claim 4 in Group III and further recites "wherein the first and second blanket cylinders have direct gears separated from the other, with each direct gear being driven by the third motor."

Claim 7 was rejected under 35 U.S.C. § 103 as being unpatentable over Volz in view of Pushnerat and over Richards in view of John, and depends from claim 4

and for the reasons above with respect to claim 4 withdrawal of the rejection is respectfully requested.

In addition, neither Volz nor Pushnerat nor Richards nor John discloses first and second blanket cylinders have direct gears separated from the other, with each direct gear being driven by the third motor, as recited in claim 7, nor is any motivation provided to provide such a feature.

Withdrawal of the rejection to claim 7 for this reason as well is respectfully requested.

Group V: Claim 10

Claim 10 depends from claim 9 and further recites "wherein the first anilox inker includes an ink form roll and the second anilox inker a second ink form roll, and wherein in a first mode the ink form roll is driven directly by the first motor, and the first plate cylinder, first blanket cylinder and second blanket cylinder are driven indirectly by the first motor."

Claim 10 was rejected under 35 U.S.C. § 103 as being unpatentable over Volz in view of Pushnerat and over Richards in view of John, and depends from claim 9 and for the reasons above with respect to claim 9 (Group III).

In addition, neither Volz nor Pushnerat nor Richards nor John discloses a mode where the ink form roll is driven directly by the first motor, and the first plate cylinder, first blanket cylinder and second blanket cylinder are driven indirectly by the first motor, nor has the office action identified any such mode.

The statement regarding claim 10 in the Final Office Action at page 6 does not address the claim limitations at all.

Withdrawal of the rejections for this reason as well is respectfully requested.

Group VI: Claim 12

Claim 12 depends from claim 10 (Group V) and further recites that in a second mode the second motor drives the second ink form roller, the second plate cylinder, and the first and second blanket cylinders.

In addition to the arguments presented with respect to claim 10, neither Volz

nor Pushnerat nor Richards nor John discloses that in a second mode a second motor drives the second ink form roller, the second plate cylinder, and the first and second blanket cylinders. Richards has a separate motor for the blanket cylinders, so the Final Office Action assertion on page 6 is not understood.

Withdrawal of the rejection to claim 12 is also respectfully requested.

Respectfully submitted,
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APPENDIX A:

PENDING CLAIMS 1 to 20 OF U.S.
APPLICATION SERIAL NO. 09/768,736

Claim 1 (original): An offset printing press comprising:

a first plate cylinder;

a first blanket cylinder for selectively contacting the first plate cylinder;

an anilox inker for inking the first plate cylinder;

a first motor directly connected to the anilox inker for driving the anilox inker and connected to the first plate cylinder for driving the first plate cylinder;

a second plate cylinder;

a second blanket cylinder for selectively contacting the second plate cylinder;

a second anilox inker for inking the second plate cylinder; and

a second motor directly connected to the second anilox inker for driving the second anilox inker and connected to the second plate cylinder for driving the second plate cylinder.

Claim 2 (previously presented): The press as recited in claim 1 wherein the anilox inker includes an ink form roll and an anilox roll, the first motor directly driving the ink form roll.

Claim 3 (original): The press as recited in claim 2 wherein the ink form roll and the first plate cylinder have the same diameter.

Claim 4 (original): The press as recited in claim 1 further comprising a third motor for driving the first and second blanket cylinders.

Claim 5 (previously presented): The press as recited in claim 4 wherein the anilox inker includes an anilox roll and an ink form roll, the first motor driving the ink form roll directly, and the anilox roll and the first plate cylinder through a set of gears, and the second anilox inker includes a second anilox roll and a second ink form roll, the

second motor driving the second ink form roll directly and the second anilox roll and the second plate cylinder through a second set of gears.

Claim 6 (original): The press as recited in claim 4 wherein the first and second blanket cylinders are directly geared together.

Claim 7 (original): The press as recited in claim 4 wherein the first and second blanket cylinders have direct gears separated from the other, with each direct gear being driven by the third motor.

Claim 8 (previously presented): The press as recited in claim 1 wherein the first plate cylinder is thrown off of the first blanket cylinder while the second plate cylinder continues a printing operation.

Claim 9 (original): The press as recited in claim 1 wherein one of the first and second motor drives the first and second blanket cylinders.

Claim 10 (original): The press as recited in claim 9 wherein the first anilox inker includes an ink form roll and the second anilox inker a second ink form roll, and wherein in a first mode the ink form roll is driven directly by the first motor, and the first plate cylinder, first blanket cylinder and second blanket cylinder are driven indirectly by the first motor.

Claim 11 (original): The press as recited in claim 10 wherein the second plate cylinder is thrown off of the second blanket cylinder.

Claim 12 (original): The press as recited in claim 10 wherein in a second mode the second motor drives the second ink form roller, the second plate cylinder, and the first and second blanket cylinders.

Claim 13 (original): The press as recited in claim 12 wherein the first plate cylinder is

thrown off of the first blanket cylinder.

Claim 14 (original): A method for driving a printing unit having a first anilox inker, a first plate cylinder, a first blanket cylinder selectively contacting the first plate cylinder, a second blanket cylinder, a second plate cylinder selectively contacting the second plate cylinder, and a second anilox inker, the method comprising the steps of:

directly driving the first anilox inker using a first motor;

indirectly driving the first plate cylinder using the first motor;

directly driving the second anilox inker using a second motor; and

indirectly driving the second plate cylinder using the second plate cylinder.

Claim 15 (original): The method as recited in claim 14 further including driving the first and second blanket cylinders with one of the first and second motors.

Claim 16 (original): The method as recited in claim 14 further including driving the first and second blanket cylinders with a third motor.

Claim 17 (original): The method as recited in claim 14 wherein the first anilox inker includes an ink form roller and an anilox roller, the first motor directly driving the ink form roller.

Claim 18 (original): The method as recited in claim 17 wherein the ink form roller and the first plate cylinder have the same diameter.

Claim 19 (previously presented): The method as recited in claim 18 wherein the ink form roller contacts the first plate cylinder and the anilox roll contacts the ink form roller without directly contacting the first plate cylinder.

Claim 20 (previously presented): The press as recited in claim 3 wherein the ink form roller contacts the first plate cylinder and the anilox roll contacts the ink form roller without directly contacting the first plate cylinder.

Exhibit B

HEIDELBERG

Helmut Kipphan (Ed.)

Handbook of Print Media

Technologies and Production Methods

Including 1275 figures, mostly in color
and 92 tables

Springer

Prof. Dr.-Ing. habil. Helmut Kipphan
Heidelberger Druckmaschinen AG
Kurfürsten-Anlage 52–60
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smaller they are, the better the inking quality of the inking unit. This is defined by the degree of irregularity η.

$$\eta = \frac{S_{max} - S_{min}}{S_{average}} \cdot 100\,\%$$

S_{max} the maximum ink film thickness on the plate printing elements,
S_{min} the minimum ink film thickness on the plate printing elements,
$S_{average}$ the arithmetic average of the ink film thickness of all plate printing elements.

Theoretical and practical experiments [2.1.-5] have indicated that the inking behavior of front-heavy inking units is clearly better than that of back-heavy systems. Therefore modern offset inking units in web-fed and sheet-fed presses are usually designed as front-heavy systems.

Another option for increasing inking-up quality is to install additional rider rollers, which smooth the ink film on the rollers in the main ink flow (figs. 2.1-7 and 2.1.-9). Various inking unit designs are shown in figure 2.1-10.

These roller-type inking units consist of a number of alternating stiff and flexible coated rollers. The stiff rollers (hard surface) generally perform a reciprocating movement in a transverse direction (they are also referred to as "distributor rollers") to smoothen out the ink profile on the roller surface and the scores/lines in the ink which appear in the travel direction of the sheets.

Newspaper presses, which have lower print quality demands than commercial presses, also use ink-zone-free short inking units or "*anilox inking units*" (fig. 2.1-11, see also sec. 2.1.3.5). These inking units have a simpler design than conventional inking units and offer the great advantage that the inking unit is in stable equilibrium after only a few revolutions due to the low ink storage capacity. The main disadvantage of these systems is that they require inks with lower viscosity than conventional inking units, which leads to a high dot gain during printing.

Like a gravure cylinder, the anilox roller (fig. 2.1-11) has cells. These cells all have the same filling volume. Wear is an important consideration as the excess ink is squeezed off the roller, although adequate service life is ensured with the materials used nowadays (ceramic screen roller, blade made from high-alloy material).

Dampening solution metering is particularly critical with short inking units, the dampening solution that is not taken up by the printing plate cannot evaporate on its short path to the ink fountain, which means it collects in the ink fountain. The main advantage of short inking units is the ink-zone-free ink feed, especially with "anilox inking units".

Conventional roller-type inking units need special ink feed systems with the option of metering the ink in the *ink zones*. Examples include fountain roller blades and fountain roller, ink zone systems.

As illustrated in figure 2.1-12, a flexible ink blade can be adjusted at varying distances to the ink fountain using ink screws to adjust the amount of ink taken out of the ink fountain. This ink blade system is not without side effects (cross talking). The ink blade can be designed to rest as a beam on n supports (n the number of ink screws). Adjusting a single ink screw may affect not only the zones right next to it, but the entire system. Therefore printing press manufacturers have developed various solutions for ink zone systems free from side effects.

The following is a short description of the ink zone system from Heidelberger Druckmaschinen AG (fig. 2.1-13). The ink film defined in thickness is created by the interaction of ink fountain roller and adjusting cylinder. The adjusting cylinder has an eccentric section which ends just in front of the cylinder so that rings are produced that rest on the fountain roller. As

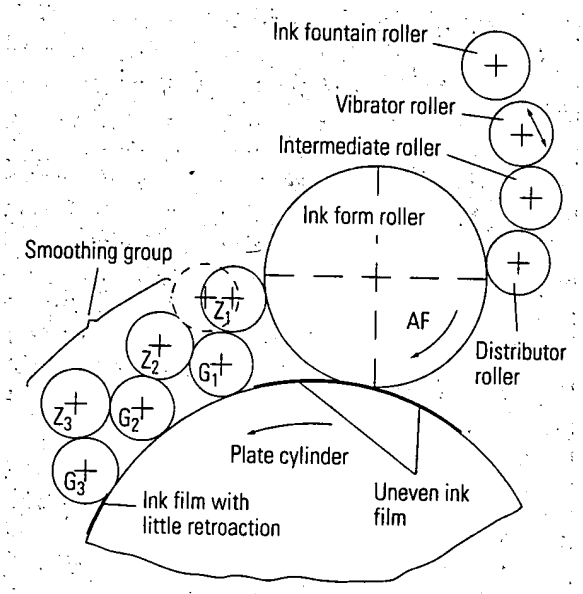

Fig. 2.1-9
Inking unit with film-thickness smoothing system on the plate cylinder

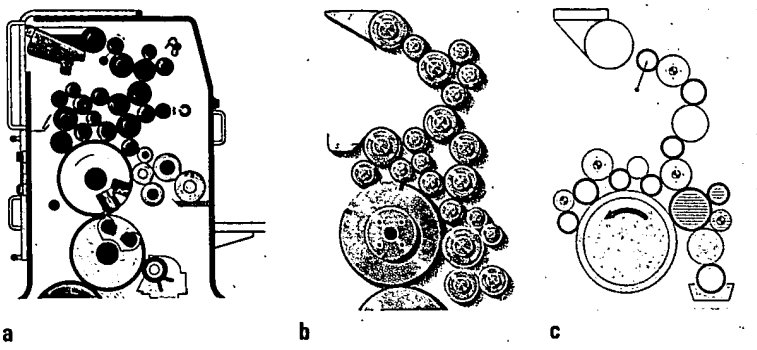

Fig. 2.1-10
Inking unit designs for offset printing units.
a Speedmaster 102 (Heidelberg);
b Roland 700 (MAN Roland);
c Rapida 104 (KBA)

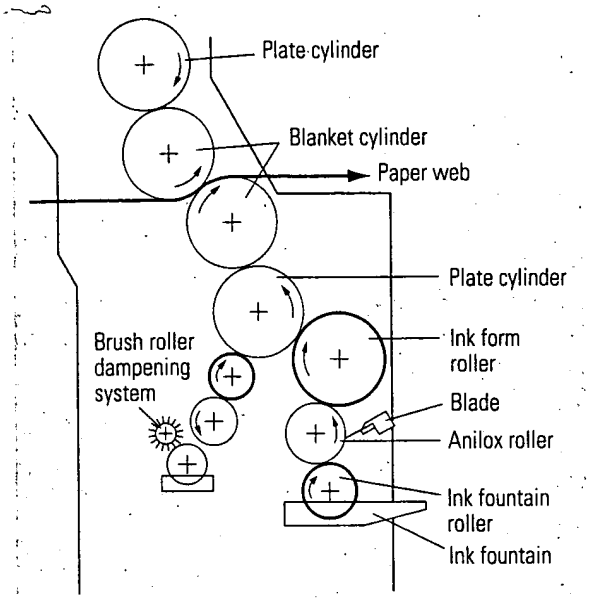

Fig. 2.1-11
Example of a "short inking unit" in an offset printing unit for newspaper printing

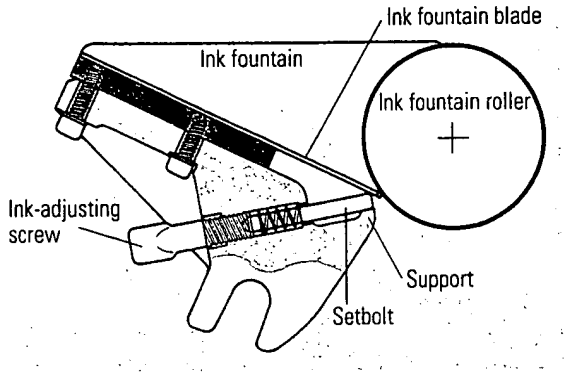

Fig. 2.1-12
Ink fountain with continuous ink duct blade and ink fountain screws

shown in figure 2.1-13b, ink-free areas are produced that on the fountain roller as a result of supporting the adjusting eccentrics. This is compensated for by the axially oscillating distributor rollers in the inking unit so that the plate is covered in an evenly closed ink film in line with the print image. A cover foil is inserted between the ink fountain roller and the adjusting cylinders, which also facilitates cleaning the ink fountain. Due to its structural design the system automatically compensates for both inaccuracy in the concentric running of the fountain roller and expansion due to heat and, as such, can be described as a self-stabilizing design.

Other ink zone systems with no side effects have also been developed, such as ink slides or slotted ink duct blade and doctor blade systems (fig. 2.1-14).

Conventional inking units (as shown in fig. 2.1-7) therefore require adjustable ink feed systems since ink consumption varies across the width of the press in accordance with the image. The ink zone elements and/or the ink fountain blade have to be adjusted accordingly (see also fig. 2.1-13).

Dampening Units

Conventional offset printing requires a dampening system to supply a very thin film of dampening solution (approx. 2 µm) to the non-printing elements of the printing plate. Since part of the dampening solution is printed via the ink, plate, and blanket and another part